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August 22, 1996

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street NW
Washington DC 20554

Re: Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297

Dear Mr. Caton:

On behalf of Sierra Digital Communications, Inc., I enclose the original and nine copies of "Reply Comments of Sierra Digital Communications, Inc." in the above-captioned rulemaking.

Kindly date-stamp and return the enclosed extra copy of this cover letter.

If there are any questions about this filing, please call me directly at the number above.

Respectfully submitted,

Gerald P. McCartin

Enclosure

cc (w/encl): Hal Tenney
Sierra Digital Communications, Inc.

ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

In the Matter of	)	
	)	
Rulemaking to Amend Parts 1, 2, 21, and 25	)	
of the Commission's Rules to Redesignate	)	
the 27.5-29.5 GHz Frequency Band, to	)	CC Docket No. 92-297
Reallocate the 29.5-30.0 GHz Frequency Band,	)	
to Establish Rules and Policies for Local	)	
Multipoint Distribution Service and for Fixed	)	
Satellite Services	)	

REPLY COMMENTS OF SIERRA DIGITAL COMMUNICATIONS, INC.

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August 22, 1996

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SUMMARY

None of the first-round comments offers any factual support for reallocating the 31 GHz band for LMDS. In contrast, 31 GHz users presented substantial evidence showing in detail how their operations are in the public interest. Some of those applications serve public safety by meeting specific needs in traffic control, environmental protection, and accident response. Others advance the public interest by promoting efficient and competitive point-to-point telecommunications and video distribution, facilitating cellular and PCS deployment, expanding LAN and PBX coverage, and serving medical requirements for remote imaging. In all, 31 GHz applications are diverse, geographically widespread, and growing fast, and they serve important public interests.

The legal arguments favoring the reallocation for LMDS rest exclusively on the "unprotected" nature of 31 GHz operations -- the fact that 31 GHz facilities rely on technical rather than legal rules for interference protection from one another -- as if this eliminated all public interest in 31 GHz operations vis-à-vis the introduction of a new service. Common sense says otherwise. So does the U.S. Court of Appeals for the D.C. Circuit, which expressly requires the Commission to consider the public interest even in unprotected services. So also does Commission precedent in protecting certain unlicensed Part 15 operations against a new licensed service receiving an allocation in the same band.

The Commission here must balance the public interest in 31 GHz operations not against LMDS as a whole, but against the public interest in increasing the spectrum available to LMDS, currently 1,000 MHz, by the 300 MHz of 31 GHz spectrum under consideration here -- a small and conjectural increase in public interest benefits at most.

Alternatively, if the Commission concludes that additional spectrum is required for LMDS and that the 31 GHz band is the appropriate source of that spectrum, Sierra urges the Commission to adopt the following proposal, developed in consultation with LMDS interests, for sharing the band:

31.000-31.075 GHz: point-to-point fixed (75 MHz)
31.075-31.225 GHz: LMDS subscriber-to-hub (150 MHz)
31.225-31.300 GHz: point-to-point fixed (75 MHz).

This proposal gives LMDS the full 1,000 MHz total of unencumbered spectrum that it requires, according to the record, in addition to the 150 MHz of co-primary spectrum in the 29 GHz band that is shared with mobile satellite feeder links. The proposal also preserves much-needed point-to-point operations in the band, and minimizes projected interference between the two services.

The Commission's suggestion of a licensing freeze at 31 GHz drew little reasoned support even among LMDS interests, and should be abandoned.

Before the
FEDERAL COMMUNICATIONS COMMISSION
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REPLY COMMENTS OF SIERRA DIGITAL COMMUNICATIONS, INC.

Sierra Digital Communications, Inc. ("Sierra") files these Reply Comments in response to the First Report and Order and Fourth Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding. Sierra opposes the Commission's proposal to redesignate 31.0-31.3 GHz for use by LMDS providers on a primary protected basis. In the alternative, Sierra supports a proposal for sharing the 31 GHz band set out in Part III, below.

I. THE COMMENTS PROVIDE NO LEGAL OR FACTUAL SUPPORT FOR DESIGNATING THE 31 GHz BAND FOR LMDS.

To no one's surprise, LMDS interests almost universally support the Commission's proposal to make the 31 GHz band available to LMDS. In these times of chronic spectrum shortage, no industry can turn down the chance to bid on 300 MHz. The number of comments filed in support of the proposal reflects these economic realities.

The substance of the supporting comments, however, is less compelling than their quantity. None presents a public-interest case for the allocation, beyond citing the brief

discussion in the Notice, and the legal arguments offered for reallocation misread the Commission's rules and ignore relevant precedent. In contrast, the factual and legal presentations offered by 31 GHz proponents show in detail the public interest in ongoing 31 GHz operations, as well as the Commission's legal obligation to consider that public interest in this proceeding.

A. All of the Factual Showings in the Comments Militate Against the Commission's Proposal.

Sierra's first-round comments showed that the two factual premises underlying the Commission's proposal are incorrect.

First, existing use of the band is not, as the Commission thought, "relatively light and . . . concentrated in only a few areas of the country."[1/] Applications are geographically dispersed and expanding at a fast-growing rate. Just one 31 GHz application, traffic control systems, is used by more than thirty state, county, and city governments spread over at least ten states, including a number of large cities and counties and three state departments of transportation. A list of 36 cities, counties, and states presently using systems provided by one supplier is attached to the comments of Sunnyvale GDI, Inc. Also attached to that filing is a list of another 42 sites still being installed, on order, or in the planning and specification stage.

Second, applications are not limited to traffic lights and local area networks. Examples of other applications in use today include remote video traffic monitoring, interconnecting cellular and PCS cell sites, interconnecting customers with fiber optic

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1/ Notice at ¶ 99.

networks, extending PBX coverage among additional buildings, point-to-point video distribution among studios and other facilities and to transmitter sites, and remote medical imaging from operating rooms and intensive care units to make the most efficient use of scarce and expensive medical expertise.

Other commenters provided first-hand detail on the importance of 31 GHz traffic control applications to public safety and pollution control.[2/] Filings by municipal governments and a state air quality board provided very specific facts on the uses of this technology for public safety and environmental protection, in some cases as part of Intelligent Transportation Systems.[3/] One city explained how its 31 GHz system not only coordinates traffic lights but also reports malfunctions to facilitate the dispatch of maintenance personnel, thereby reducing delays, congestion, and hazardous road conditions.[4/] Another specified its current governmental investments in 31 GHz equipment and discussed the financial obstacles that would prevent shifting to other technologies if 31 GHz became unavailable.[5/] A third city, built on rock, noted the impracticability of installing underground conduits for copper cable or fiber optics.[6/] A 31 GHz supplier pointed out that, with federal funding for

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[2/] *See* Comments of Comstat Communications Inc., Comments of Sunnyvale GDI, Inc., Comments of City of Topeka, Kansas, Comments of City and County of Honolulu, Comments of City of San Diego, Comments of Mobile Source Air Pollution Reduction Review Committee of the South Coast Air District, State of California.

[3/] Comments of City of San Diego at 1.

[4/] Id.

[5/] Comments of City of Topeka, Kansas at ¶¶ 1, 3.

[6/] Comments of City and County of Honolulu.

roadways declining, state and local governments have no choice but to move traffic more efficiently along existing pavement.[7/]

In contrast, none of the comments favoring the reallocation presented any comparable support. To the contrary, two LMDS interests offered factual points *against* the Commission's proposal. The Wireless Cable Association International, Inc. freely concedes that, "because of the added costs associated with using both the 28 GHz band and the 31.0-31.3 GHz band, many LMDS operators will opt to only employ the former."[8/] The Association explains,

> [T]he Commission should recognize that not all LMDS system operators will necessarily want to make use of the 31.0-31.3 GHz band. As the *Third NPRM* reflects, there are potential applications for LMDS that do not even require all of the spectrum being made available in the 28 GHz band."[9/]

With equal candor, two CellularVision affiliates volunteer that there is no equipment available for LMDS at 31 GHz: "[T]he use of 31 GHz spectrum in conjunction with a 28 GHz LMDS system may not be immediately viable given the lack of LMDS equipment specifically designed for the 31 GHz band . . . ."[10/]

In short, the comments demonstrate that current 31 GHz applications are geographically widespread, diverse, important to public safety and the public interest in other respects, and in many cases cannot feasibly be replicated using other technologies. Moreover,

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[7/] Comments of Sunnyvale GDI, Inc. at 4.

[8/] Comments of Wireless Cable Association International, Inc. at 3.

[9/] Id.

[10/] Comments of CellularVision USA, Inc. at 5. *See also* Comments of CellularVision Technology and Telecommunications, L.P. at 5 (research and development is necessary for LMDS industry to create commercially viable uses of 31 GHz spectrum).

some LMDS advocates imply that they do not want or need this spectrum, and that no LMDS providers presently have the technology to use it.

B. Legal Arguments for the Reallocation Misstate the Applicable Law.

The commenting parties supporting the reallocation of the 31 GHz band rely solely on the same mistaken legal argument advanced by the Commission in the Notice. Texas Instruments's formulation is typical: "Under well-established Commission precedent, secondary users are entitled to no interference protection."[11/] But Sierra demonstrated in its opening comments that the argument is irrelevant. For, while it is true that the Commission's Rules give 31 GHz users no protection as against one another, and also no protection against a service designated as primary, that does not support allocating the band to a new service -- LMDS -- and making it primary. The present issue is whether LMDS should *become* an authorized user. And the lack of interference protection afforded to 31 GHz has no bearing on that question.

The U.S. Court of Appeals disposed of this issue in H&B Communications Corp. v. FCC.[12/] There, a cable operator opposed an application for a TV translator in the same community on the ground that it would interfere with cable service and therefore was inconsistent with the public interest. The Commission granted the translator application

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11/ Comments of Texas Instruments at 9. *See also, e.g.*, Comments of GE American Communications, Inc. at 3; Comments of RioVision, Inc. at 2.

12/ 420 F.2d 638 (D.C. Cir. 1969).

without a hearing in part because cable systems are not entitled to interference protection.[13/] But the D.C. Circuit reversed, explaining:

> The Commission was required to rest its decision, as it undertook to do, on a finding that the translator service promotes the "public interest, convenience, and necessity." In so doing it is incumbent upon the Commission not only to give weight to the benefit which 5,000 households would gain through the operation of an additional, noncommercial, translator service, but to consider, in comparison, the harm which might result from the interference to some 2,000 CATV subscribers. . . . **Assuming that a CATV system is an unprotected television service, such a weighing process nevertheless is required.**[14/]

In exactly the same way, the fact that 31 GHz operations are unprotected against other authorized users does not excuse the Commission from considering the public interest in those operations in deciding whether to designate the band for LMDS. And, as noted above, the record in this proceeding has detailed evidence that the band is currently devoted to services that meet vital public interest needs.

Moreover, the public interest in present and future 31 GHz operations must be balanced not against LMDS as a whole, but against the incremental increase in the value of LMDS that would result from adding the 31 GHz band to the 1,000 MHz already allocated to LMDS. In view of the comments of LMDS advocates about the lack of equipment and lack of need for that much spectrum, any such incremental increase is small and largely conjectural at best.

[13/] Id., 420 F.2d at 639.

[14/] Id., 420 F.2d at 642.

Even so, the public-interest weighing called for in H&B Communications need not result in a winner-take-all decision. A recent example of the Commission's balancing the interests of a new service and those of an unprotected existing service arose in the rulemaking assigning the 902-928 MHz band to a licensed Location and Monitoring Service ("LMS").[15/] That band was already populated by low-power, unlicensed devices operating under Part 15 of the Rules. Both the Rules and Commission policy provided that Part 15 devices could not cause harmful interference to, and had to accept interference from, any licensed service. But the Commission nonetheless found Part 15 operations to be in the public interest, and fashioned a resolution under which Part 15 devices operating under certain conditions are deemed not to cause harmful interference to LMS.[16/] The present controversy calls for a different kind of compromise, to be sure, and Sierra proposes one in Part III, below.

In summary, a statement that 31 GHz operations are unprotected against interference does not end the inquiry, but only begins it. Sierra's first-round comments explained that 31 GHz users rely on technical regulations for interference protection, rather than on primary status and frequency coordination.[17/] The Commission itself rightly expected the combination of high free space and atmospheric attenuation, low transmitter power, and high antenna gain to limit interference at 31 GHz,[18/] and many users put a high value on the rapid licensing that is possible in the absence of frequency coordination. But these means of

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15/ PR Docket No. 93-61.

16/ 47 C.F.R. § 90.361.

17/ Comments of Sierra Digital Communications, Inc. at 6-8.

18/ Fixed and Mobile Services, 57 R.R.2d 1162, 1164 (1985) (Second Report and Order).

preventing interference cannot be said to have denied 31 GHz users the right to consideration of the public interest in the services they are receiving, or to have put 31 GHz users on notice that they might some day have to contend with LMDS in the band. Moreover, H&B Communications makes clear that the unprotected status of 31 GHz users does not extinguish their right to be considered in the public interest calculation.[19/] Finally, the Location and Monitoring Service proceeding shows the feasibility of authorizing new services in a band while still preserving valuable existing services that are lower on the scale of interference priority.

II. EVEN LMDS INTERESTS SHOW LITTLE SUPPORT FOR A LICENSING FREEZE AT 31 GHz.

Most LMDS commenters are silent on the Commission's proposal to cease accepting applications in the 31 GHz band.[20/] If the Commission adopts the band-sharing proposal put forward in Part III, below, then the freeze is plainly inappropriate. And Sierra's first-round comments showed that the freeze is unnecessary in any event. Users of the 31 GHz band are aware of the Notice and understand that future investments in the band are subject to the risk of an allocation to LMDS. Users should continue to have access to the band, even if the Commission does reallocate it, except in cases where there is actual interference to or from LMDS. Subject to that condition, there is no reason why 31 GHz users should not be

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[19/] Similarly, there is simply no legal basis for concluding that 31 GHz users' lack of legal interference protection bars the Commission from requiring LMDS licensees to pay for their relocation. Comments of RioVision at 2; Comments of Texas Instruments at 9.

[20/] Notice at ¶ 104.

permitted to maximize the value of their present investments by renewing, modifying or expanding their systems, or even constructing new ones.[21/]

Only one commenter, Hewlett-Packard Company, even attempts to offer substantive support for an applications freeze.[22/] Hewlett-Packard asserts: "Further licensing at this point would only create confusion in the band, and would present a further hurdle to working out a sharing plan."[23/] But there is no confusion in the band now, and further 31 GHz licensing will not cause any, even if the Commission ultimately reallocates the band to LMDS. Further licensing certainly is no obstacle to a sharing plan. Sierra's proposed sharing plan, set out in Part III, below, requires 31 GHz users in the portion of the band allocated to LMDS to re-tune their equipment as soon as they receive interference from or cause interference to LMDS. As a matter of fundamental equity, Sierra believes that the LMDS licensee should generally pay for the re-tuning or other costs of relocation,[24/] but only as to 31 GHz facilities whose applications were granted or filed on the release date of the Notice.

[21/] Comments of Sierra Digital Communications, Inc. at 11-12. The long-standing freeze on common carrier applications at 27.5-29.5 GHz is not intended to protect users who might be displaced by LMDS, but serves a very different purpose: to block the filing of waiver applications to offer LMDS-like point-to-multipoint services. Rules and Policies for Local Multipoint Distribution Service, 11 FCC Rcd 53, 58 (1995) (Third Notice of Proposed Rulemaking).

[22/] Comments of Hewlett-Packard Company at 4. Two other commenters offer a perfunctory endorsement without giving any grounds. Comments of RioVision at 2; Comments of Texas Instruments at 9.

[23/] Comments of Hewlett-Packard Company at 4.

[24/] Comments of Sierra Digital Communications, Inc. at 13-14.

With these understandings in place, the Commission's continuing to accept and process applications at 31 GHz is no hurdle to a sharing plan.

Hewlett-Packard goes on: "Furthermore, approving additional licenses while the use of the band is pending could have a detrimental effect to the cost effectiveness of the band if speculators were allowed to hold licenses in this band."[25/] But this does not follow: Speculators at 31 GHz would have no rights as against LMDS, and so could not alter the cost effectiveness of the band for LMDS. Finally, Hewlett-Packard states: "HP understands the Commission's expressed intent to move expeditiously with the proceeding, and accordingly, believes that potential licensees should not be placed at a disadvantage by not being allowed to obtain a license for the 31 GHz band until this docket is resolved." Sierra does not understand this objection as written.[26/]

In short, neither the Commission nor any commenter has justified the proposed freeze on 31 GHz applications. It would affirmatively harm incumbent users without serving any useful purpose. The Commission should abandon the idea of a freeze as unsupported and unsupportable.

25/ Comments of Hewlett-Packard Company at 4.

26/ Perhaps the "not" after "disadvantage by" was unintended, so that the sentence would read, "[P]otential licensees should not be placed at a disadvantage by being allowed to obtain a license for the 31 GHz band until this docket is resolved." If that is the intended meaning, then Sierra vigorously disputes it. The decision whether a potential 31 GHz user is disadvantaged by filing an application belongs to the applicant, and it is not the Commission's role to predetermine the applicant's decision whether to take the risk of obtaining, renewing, or modifying an authorization.

III. BOTH LMDS AND 31 GHz INTERESTS WOULD BENEFIT FROM SHARING THE BAND.

The Commission has previously determined that LMDS does not need a full 300 MHz in the 31 GHz band. The initial Notice in this proceeding proposed 1,000 MHz blocks for LMDS,[27] and the adequacy of that much spectrum has not been seriously challenged since then. The recent effort to reach a sharing agreement with satellite interests likewise started from an assumption that LMDS needs 1,000 MHz.[28]

Now, the Commission has indeed allocated a full 1,000 MHz for LMDS -- 850 MHz on a primary basis at 27.5-28.35 GHz, and another 150 MHz co-primary at 29.1-29.25 GHz.[29] The purpose of designating an additional 300 MHz in the 31 GHz band is to compensate for the fact that 150 MHz of the 28-29 GHz allocation is encumbered by co-primary status with mobile satellite feeder links.[30] But the Commission's proposal would give LMDS a total of 1,300 MHz, with primary status in 1,150 MHz. Even discounting entirely the 150 MHz that LMDS must share with satellite operations, it would still receive 150 MHz more than has ever been justified for the service, at the expense of current operations in the 31 GHz band.

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[27] Local Multipoint Distribution Service, 8 FCC Rcd 557 (1993).

[28] "LMDS developers and/or manufacturers participating in the Negotiated Rulemaking Committee proposed system plans based on 1 gigahertz of spectrum. LMDS equipment developers have designed and built systems operable on 1 gigahertz of spectrum." Local Multipoint Distribution Service, 11 FCC Rcd 53, 82 (1995) (Third Notice of Proposed Rulemaking).

[29] Notice at ¶ 42.

[30] Notice at ¶ 97.

After consulting with some of the LMDS interests that have been most active in this proceeding,[31] Sierra here offers a compromise proposal for sharing 300 MHz in the 31 GHz band:

31.000-31.075 GHz: point-to-point fixed (75 MHz)

31.075-31.225 GHz: LMDS subscriber-to-hub (150 MHz)

31.225-31.300 GHz: point-to-point fixed (75 MHz)

This distribution of spectrum would grant LMDS primary protected status in the middle 150 MHz of the 31 GHz band. This would assure LMDS of its required full 1,000 MHz of spectrum in which it alone has primary status, plus the additional 150 MHz of co-primary spectrum in the 29 GHz band shared with satellite feeder links.

Because the 29.10-29.25 GHz band is restricted to operation in the hub-to-subscriber mode,[32] LMDS operators would continue to use the 29 GHz band for hub-to-subscriber operation only. For subscriber-to hub-operation, LMDS would use the center 150 MHz of the 31 GHz band, at 31.075-31.225 GHz.[33]

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[31] In the course of preparing these Reply Comments, Sierra consulted with CellularVision, Endgate, Hewlett-Packard, and Texas Instruments. These entities are aware that Sierra is making this proposal to the Commission, but Sierra cannot yet represent that each endorses the proposal. Most of these parties, however, are on record as supporting negotiations with the 31 GHz community. *See* Comments of CellularVision USA, Inc. at 11; Comments of Hewlett-Packard Co. at 3; Comments of Texas Instruments, Inc. at 9.

[32] Notice at ¶ 45.

[33] Sierra does not anticipate harmful adjacent-band interference from this use as long as LMDS operates properly within its 150 MHz sub-band. In addition, because of the separation between the 29 and 31 GHz bands, this plan offers equipment design benefits to LMDS in reduced filtering complexity and cost. Although the plan makes antenna design more challenging due to the frequency separation, the total difference between the upper ends or lower ends of the two bands is still less than 2 GHz. The proposed compromise therefore should meet the technical needs of both services.

Point-to-point 31 GHz licensees would retain the use of the upper and lower 75 MHz sub-bands (31.000-31.075 and 31.225-31.300 GHz) on an unprotected basis, as they do now, free of interference from LMDS. All new point-to-point 31 GHz licenses would be issued in the upper and lower 75 MHz sub-bands. Current point-to-point users in the middle block, to be designated for LMDS, could continue operations there until they receive interference from or cause interference to LMDS, at which time their equipment would be re-tuned to conform to the new frequency plan.

Sierra urges the Commission to adopt this compromise. It fulfills the original promise to LMDS of 1,000 MHz of unencumbered spectrum, while at the same time recognizing the public interest in current point-to-point use of the 31 GHz band.

CONCLUSION

None of the first-round comments offers any factual support for designating the 31 GHz band for LMDS. In contrast, 31 GHz users showed in detail why their operations are in the public interest -- many serve public safety directly -- and why alternative technologies are not feasible for many applications. Legal arguments favoring the designation for LMDS focused on the "unprotected" nature of 31 GHz operations, but miss the important point that 31 GHz users rely on technical rules, rather than legal status, for interference protection, and still have every right to be heard against the introduction of a new service into the band. Legal arguments in the comments also overlook case law that *requires* the Commission to consider the public interest in unprotected services. Even among LMDS advocates, support for a 31 GHz licensing freeze is almost nonexistent. Finally, in consultation with LMDS interests, Sierra offers a compromise proposal for splitting the band that gives LMDS all of

the unencumbered spectrum it requires, according to the record, while still preserving much-needed point-to-point operations. Sierra urges the Commission to adopt this proposal.

Respectfully submitted,

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August 22, 1996

CERTIFICATE OF SERVICE

I, Gerald P. McCartin, do hereby certify that on this 22nd day of August, 1996, I have caused copies of the foregoing Reply Comments of Sierra Digital Communications, Inc. to be served by hand upon the following:

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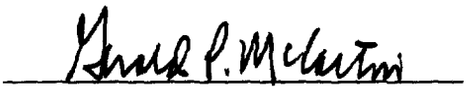

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